

**Gridflex Energy, LLC**

424 W. Pueblo St. #A, Boise, ID 83702

(208) 246-9925 · [www.gridflexenergy.com](http://www.gridflexenergy.com)



January 6, 2020

Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

Re: Preliminary Permit Application for the Eldorado Pumped Storage Project

Dear Ms. Bose,

Please find attached the application for the Eldorado Pumped Storage Project. If you have any questions or need additional information, please contact me at (208) 246-9925 or e-mail at [mshapiro@gridflexenergy.com](mailto:mshapiro@gridflexenergy.com).

Sincerely,

A handwritten signature in blue ink, appearing to read 'Matt Shapiro'.

Matthew Shapiro  
Chief Executive Officer  
Gridflex Energy, LLC

# Preliminary Permit Application for the Eldorado Pumped Storage Project

Prepared by:

Gridflex Energy, LLC  
424 W. Pueblo St., #A  
Boise, ID 83702

January 6, 2020

### VERIFICATION STATEMENT

This application for a preliminary permit is executed in the

State of Idaho

County of Ada


by: Matthew Shapiro  
Gridflex Energy, LLC  
424 W. Pueblo St., # A  
Boise, ID 83702

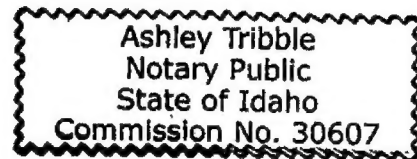
being duly sworn, depose(s) and say(s) that the contents of this Preliminary Permit Application are true to the best of (his or her) knowledge or belief. The undersigned Applicant has signed the application this 6<sup>th</sup> day of January 2020.

Applicant

By: 

Subscribed and sworn to before me, a Notary Public of the State of Idaho, this 6<sup>th</sup> day of January, 2020.

  
exp 1-7-2026  
(Notary Public, or other authorized official)



PRELIMINARY PERMIT APPLICATION  
FOR THE  
ELDORADO PUMPED STORAGE PROJECT

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#### §4.81 (a) Initial Statement

(1) Eldorado Pumped Storage, LLC, an Idaho limited liability company applies to the Federal Energy Regulatory Commission ("FERC") for a preliminary permit for the proposed Eldorado Pumped Storage Project ("Project"), as described in the attached exhibits. This application is made in order that the applicant may secure and maintain priority of application for a license for this project under Part I of the Federal Power Act while obtaining the data and performing the acts required to determine the feasibility of the project and to support an application for a license.

(2) The location of the proposed project is:

State or Territory:	Nevada
County:	Clark
Township or nearby town:	Boulder City
Stream or other body of water:	None – Closed-Loop

(3) The exact name, business address, and telephone number of the Applicant is:

Eldorado Pumped Storage, LLC  
424 W. Pueblo St., #A  
Boise, ID 83702  
Phone: (208) 246-9925

The exact name and business address of each person authorized to act as an agent for the Applicant in this application is:

#### Agent

Matthew Shapiro, CEO  
Gridflex Energy, LLC  
424 W. Pueblo St., #A  
Boise, ID 83702  
Phone: (208) 246-9925  
E-mail: [mshapiro@gridflexenergy.com](mailto:mshapiro@gridflexenergy.com)

(4) Eldorado Pumped Storage, LLC is a domestic corporation and is not claiming municipal preference under section 7(a) of the Federal Power Act.

(5) The proposed term of the requested permit is 48 months.

(6) There are no existing dams associated with the proposed Project.

#### §4.32. IDENTIFICATION

*(1) For a preliminary permit or license, identify every person, citizen, association of citizens, domestic corporation, municipality, or state that has or intends to obtain and will maintain any proprietary right necessary to construct, operate, or maintain the project;*

Eldorado Pumped Storage, LLC  
424 W. Pueblo St. #A  
Boise, ID 83702

*(2)(i) Every county in which any part of the project, and any Federal facilities that would be used by the project, would be located:*

The Project will be located in Clark County, Nevada:

Clark County  
County Clerk/Recorder  
500 S. Grand Central Parkway  
Las Vegas, NV 89106

No Federal facilities will be used by the Project.

*(2)(ii) Every city, town, or similar local political subdivision:*

*(A) In which any part of the project, and any Federal facilities that would be used by the project, would be located:*

The Project will not be located within the boundaries of any city, town, or similar local subdivision.

*(B) Cities, towns, or similar subdivision (5,000 people or more) within a 15-mile radius of the project dam:*

City of Boulder City  
401 California Avenue  
Boulder City, NV 89005

City of Henderson  
240 S. Water Street  
Henderson, NV 89015

City of Las Vegas

495 S. Main St.  
Las Vegas, NV 89101

*(iii) Every irrigation district, drainage district, or similar special purpose political subdivision:*

*(A) In which any part of the project, and any Federal facilities that would be used by the project, would be located; or*

*(B) That owns, operates, maintains, or uses any project facilities or any Federal facilities that would be used by the project;*

There are no known special purpose political subdivisions that own, operate, maintain, or use any project facilities or any Federal facilities that would be used by the Project.

*(iv) Every other political subdivision in the general area of the project that there is reason to believe would likely be interested in, or affected by, the application:*

None known.

*(v) All Indian tribes that may be affected by the project.*

Las Vegas Tribal Council  
One Paiute Drive  
Las Vegas, NV 89106

## § 4.81 (b) Exhibits

### EXHIBIT 1: DESCRIPTION OF THE PROPOSED PROJECT

The project will be a closed-loop pumped storage hydropower facility comprised of two new artificial reservoirs joined by underground conduits, an underground powerhouse, and associated generation, pumping, and transmission equipment. Maximum gross head would be 1,470 feet. Generating and pumping capacity would be 750 megawatts (MW). Annual gross energy production is estimated at 1,314,000 megawatt-hours (MWh). Details on project features are provided below.

#### Dams

	Height	Length at Crest	Type
Upper Reservoir Dam 1 Lat. 35.802 Long. -115.112	110 ft	1,100 ft	Earthen or CFRD
Upper Reservoir Dam 2 Lat. 35.801 Long. -115.106	60 ft	1,100 ft	Earthen or CFRD
Lower Reservoir Dam Lat. 35.800 Long. -115.080	5 ft to 55 ft	8,720 ft	Cut & fill earthen or CFRD

#### Reservoirs

	MSL (ft)	Volume (AF)	Surface Area (ac)
Upper Reservoir Lat. 35.800 Long. -115.109	3,520	5,500	104
Lower Reservoir Lat. 35.777 Long. -115.080	2,100	5,500	102

#### Primary Conduits

	Length	Diameter	Lining
Vertical Power Shaft	1,300 ft	21 ft	Concrete-lined & steel-lined
Headrace Tunnel	5,000 ft	21 ft	Concrete-lined & steel-lined
Tailrace Tunnel	7,000 ft	24 ft	Concrete-lined



### **Lower Reservoir Location within the Boulder City Conservation Easement**

The proposed location of the lower reservoir is within the Boulder City Conservation Easement (BCCE), which is managed by Clark County in cooperation with Boulder City. Approval of Project elements within the footprint of the BCCE would require special land use arrangements with the parties to the easement agreement, similar to those associated with the solar energy zones within the BCCE.

### **Powerhouse and Equipment**

The underground powerhouse would be located in a cavern at tentative elevation of 1900' MSL and tentative coordinates of 35.793, -115.098. Powerhouse dimensions are tentatively 400' in length, 80' in width, and 120' in height. The powerhouse would be excavated from rock and include steel and concrete formwork.

Equipment in the powerhouse would tentative consist of three variable-speed reversible pump-turbine and motor-generators, each with generating and pumping capacity of 250 MW, for a total plant capacity of 750 MW.

### **Transmission Line / Interconnection**

The point of interconnection would tentatively be the Eldorado Substation, which would be accessed via a new double-circuit 230 kV transmission line approximately 5.5 miles in length. The transmission line would require a right-of-way tentatively estimated at 150 feet, and would parallel existing transmission lines for the majority of its length.

### **Water Sourcing**

The tentative source for initial charging water and for evaporation make-up water would be the Southern Nevada Water Authority. The potential for use of treated effluent for initial fill will be explored as well. The exact points of diversion for delivery of water to the Project would be identified during the study phase. Measures for minimizing evaporation and seepage losses, including covering one or both reservoirs, will be considered during the study phase.

### **Operation**

The project will be operated to provide firm capacity to the regional power grid and to support the integration of new renewable resources interconnected currently and in the future. These resources—predominantly photovoltaic solar energy and wind energy—are emissions-free and increase energy security, but are variable and intermittent in nature. The Project will use the dynamic capabilities of pumped storage to aid in the efficient integration of solar and wind resources from both an operational and economic standpoint.

## Federal Lands

The entire project, with the exception of the transmission line, would be located on land managed by the Bureau of Land Management. The legal descriptions for these lands are given below. The BLM office involved is:

Tim Smith, District Manager  
Southern Nevada District Office  
Department of the Interior  
Bureau of Land Management  
4701 North Torrey Pines Dr.  
Las Vegas, NV 89130

## T25S R61E

### Sec. 1

All

### Sec. 12

NE1/4 NE1/4  
NW1/4 NE1/4

## T25S R62E

### Sec. 6

SW1/4 SW1/4

The sections affected are indicated in Exhibit 4.

## §4.81 (c) EXHIBIT 2: DESCRIPTION OF STUDIES

### (1) General

#### (i) Study Plan

The applicant plans to engage in the following studies in order to design the technical aspects of the project and to confirm its economic viability:

- Project land surveys
- Environmental impact studies
- Cultural resource studies
- Groundwater studies
- Energy production studies
- Water quality studies
- Water rights studies
- Engineering studies
- Study on the energy market for the project
- Transmission interconnection studies
- Determination of equipment configuration and sizing
- Cost estimates

Additional studies may be required as the need arises.

#### (ii) New Roads

No new roads will be needed for the purpose of conducting the studies described in this exhibit.

### (2) Work Plan for New Dam Construction

#### (i) Description of field studies, tests, and other land disturbing activities

Geotechnical review at this stage will be limited to desktop review and surface inspection. The applicant will use existing roads located within the project boundary to minimize or eliminate the potential for any land disturbing activities.

(ii) Studies Schedule

Work Item	Schedule	
	Month Beginning	Month Ending
<b>Engineering</b>		
Conceptual refinement and evaluation of alternatives	0	48
Initial scoping and consultation	0	8
Geological reconnaissance	2	6
<b>Environmental</b>		
Agency consultation	0	48
Cultural resource review	0	12
Environmental resource review	0	12
Prepare Pre-Application Document	8	14
Prepare draft application	24	36
<b>Other</b>		
Land & ROW	0	48
Water rights & sourcing studies	0	48
Transmission interconnection planning	6	36
Cost estimating, economic feasibility, and financial planning investigations	6	48
Power sales marketing	12	48
Additional stage consultation and documentation	20	48

This schedule may be adjusted and supplemented depending on need and contingencies that may develop as studies proceed.

**(3) Request for Waiver**

It is anticipated that preliminary field studies, tests, and other activities to be conducted under the permit would not adversely affect cultural resources or endangered species and would cause only minor alterations or disturbances of lands and waters, and that any land altered or disturbed would be adequately restored. Eldorado Pumped Storage, LLC does not propose or plan to undertake any geotechnical study that entails disturbance of land or habitat during the course of the preliminary permit. Geotechnical review at this stage will be limited to desktop review and surface inspection. The applicant therefore requests waiver of the full requirements of 18 CFR § 4.81 (c)(2).

#### (4) Statement of Costs and Financing

##### i. Estimated cost of studies

The estimated cost of carrying out and preparing the studies, investigations, tests, surveys, maps, plans and specifications described in this application is estimated to be between \$1.0 and \$1.5 million.

##### ii. Expected sources of financing

The expected sources of financing to conduct the studies described in this application are private investors and regional partners.

#### §4.81 (d) EXHIBIT 3: PROJECT MAPS

Notes:

1. No areas within the study boundary are designated as wilderness area or wilderness study area, or recommended for designation as wilderness areas.
2. No areas within the study boundary are included in or have been designated for study for inclusion in the National Wild and Scenic Rivers System



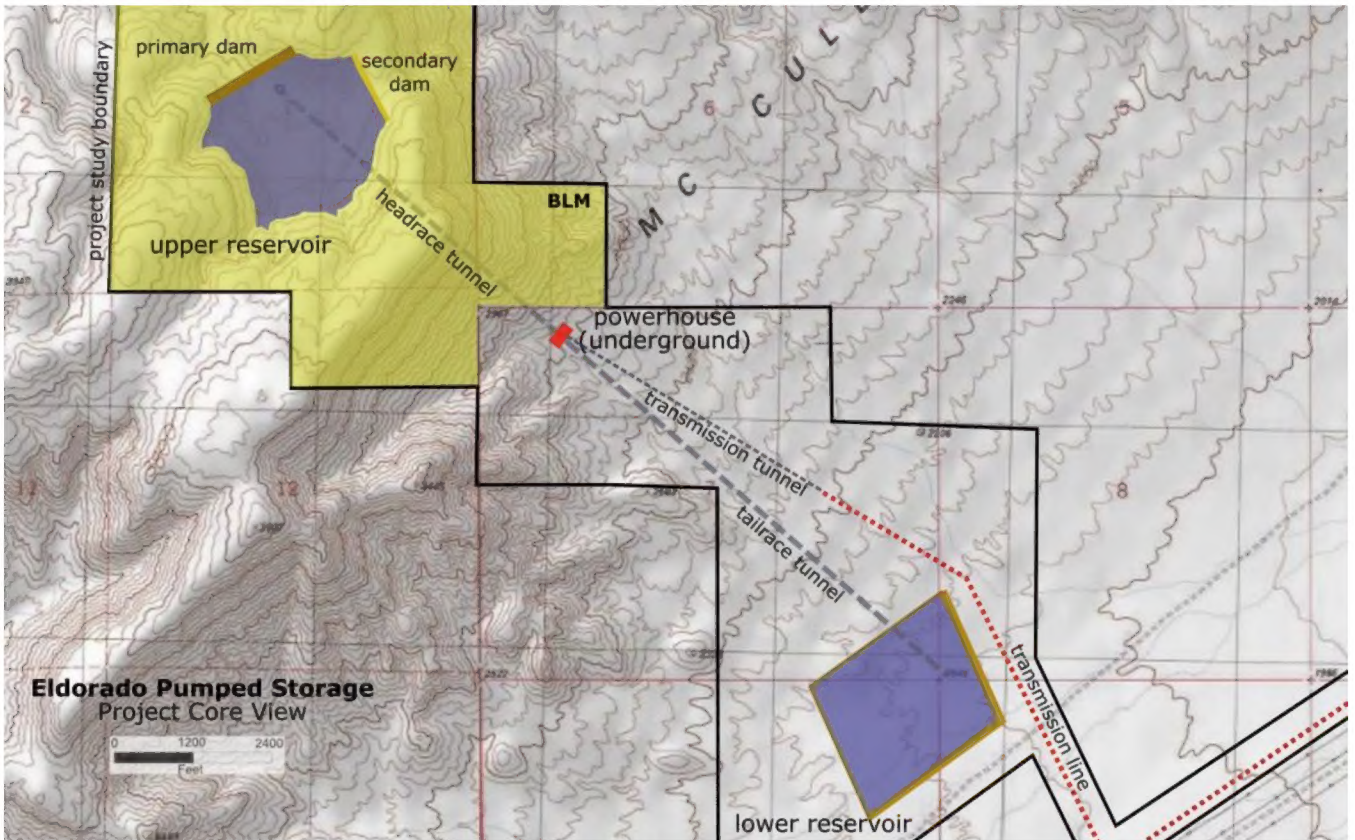
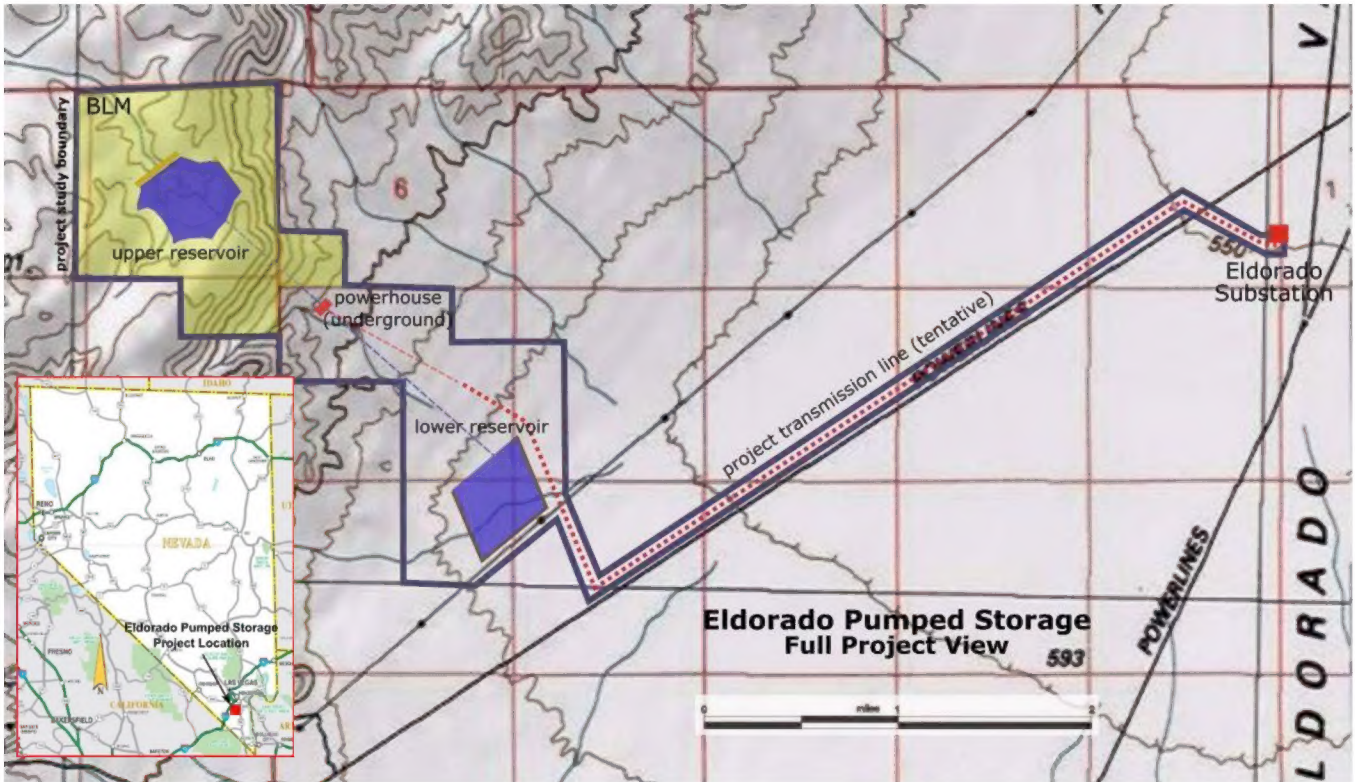


Exhibit 4: Section 4.81(b)(5) Federal Lands  
Form FERC-587

OMB No. 1902-0145  
(Expires 10/31/2018)

**LAND DESCRIPTION**  
**Public Land States**  
**(Rectangular Survey System Lands)**

1. STATE Nevada 2. FERC PROJECT NO. \_\_\_\_\_

3. TOWNSHIP T25S RANGE R61E MERIDIAN Mt. Diablo

4. Check one:

☐ License  
☒ Preliminary Permit

Check one:

☒ Pending  
☐ Issued

If preliminary permit is issued, give expiration date: \_\_\_\_\_

**5. EXHIBIT SHEET NUMBERS OR LETTERS**

<b>Section 6</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b> <b>BLM</b> <b>Exhibit 3</b>
<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b> <b>BLM</b> <b>Exhibit 3</b>
<b>18</b>	<b>17</b>	<b>16</b>	<b>15</b>	<b>14</b>	<b>13</b>
<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>
<b>30</b>	<b>29</b>	<b>28</b>	<b>27</b>	<b>26</b>	<b>25</b>
<b>31</b>	<b>32</b>	<b>33</b>	<b>34</b>	<b>35</b>	<b>36</b>

6. contact's name Matthew Shapiro  
telephone no. (208 246-9925)  
Date submitted January, 2020

This information is necessary for the Federal Energy Regulatory Commission to discharge its responsibilities under Section 24 of the Federal Power Act.



**Exhibit 4: Section 4.81(b)(5) Federal Lands**  
Form FERC-587

OMB No. 1902-0145  
(Expires 10/31/2018)

**LAND DESCRIPTION**  
**Public Land States**  
**(Rectangular Survey System Lands)**

1. STATE Nevada 2. FERC PROJECT NO. \_\_\_\_\_

3. TOWNSHIP T25S RANGE R62E MERIDIAN Mt. Diablo

4. Check one:

☐ License  
☒ Preliminary Permit

Check one:

☒ Pending  
☐ Issued

If preliminary permit is issued, give expiration date: \_\_\_\_\_

**5. EXHIBIT SHEET NUMBERS OR LETTERS**

<b>Section 6 BLM Exhibit 3</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
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Document Content(s)

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